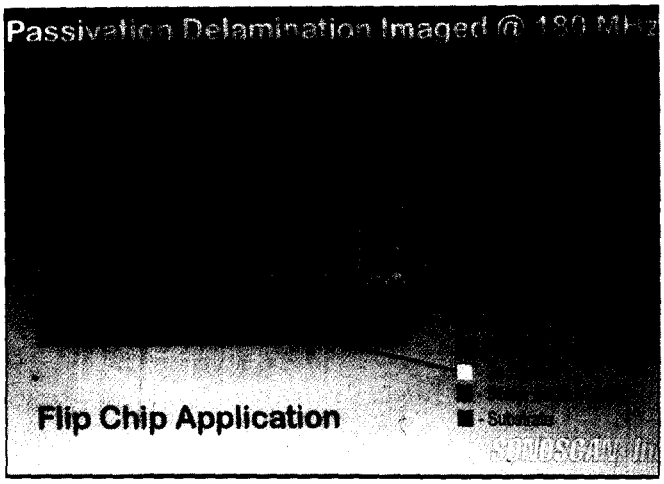
High resolution flip chip imaging



The SK 180 SPX™ from Sonoscan Inc. is a new ultrasonic transducer designed for the nondestructive internal inspection of flip chip devices. This type of device is difficult to inspect because the solder balls and any underfill are sandwiched between the die and the substrate.

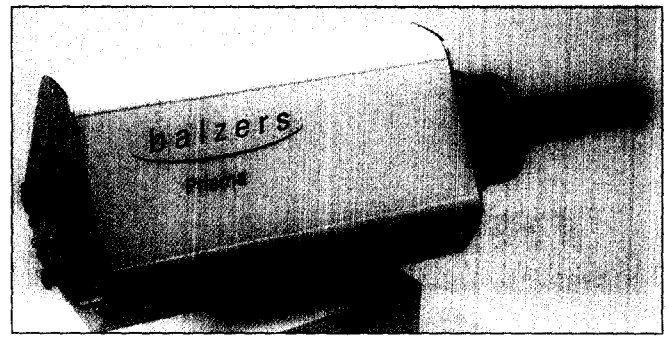
When used with Sonoscan's line of C-SAM reflection-mode acoustic micro imaging systems, the SK 180 SPX has an extended focal length to ensure that solder balls and underfill can be imaged. Running at 180 MHz gives higher resolution of the details of solder ball integrity, making it possible to image defects as small as the tiny voids inside individual solder balls.

Steven R. Martell, Sonoscan Inc., tel/fax: +1 630 766-7088/-4603.

New options for gas analyser

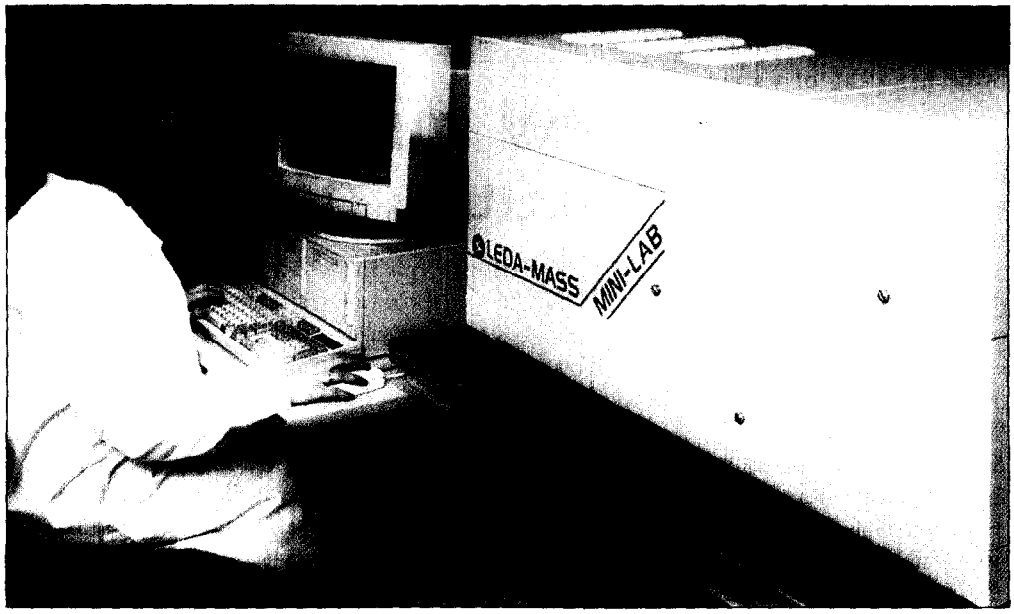
Pfeiffer Vacuum Technology Inc. says new options are now available for the Balzers Instrument's Prisma™ gas analyser designed to broaden its range of applications. Prisma is now available with 100, 200 and 300 mass ranges, high pressure capabilities, high temperature operation and a space saving 90° connector. The company says that the compact Prisma gas analyser enhances diagnostics, verification and control of semiconductor fabrication processes and is a powerful, low cost tool for R&D applications. The design employs two filaments to double uptime and significantly reduce routine maintenance.

Brian Cox, Pfeiffer Vacuum Technology, tel/fax: +1 603 578-6500/-6550; URL: www.pfeiffer-vacuum.com



Benchtop gas analyser is easy to use

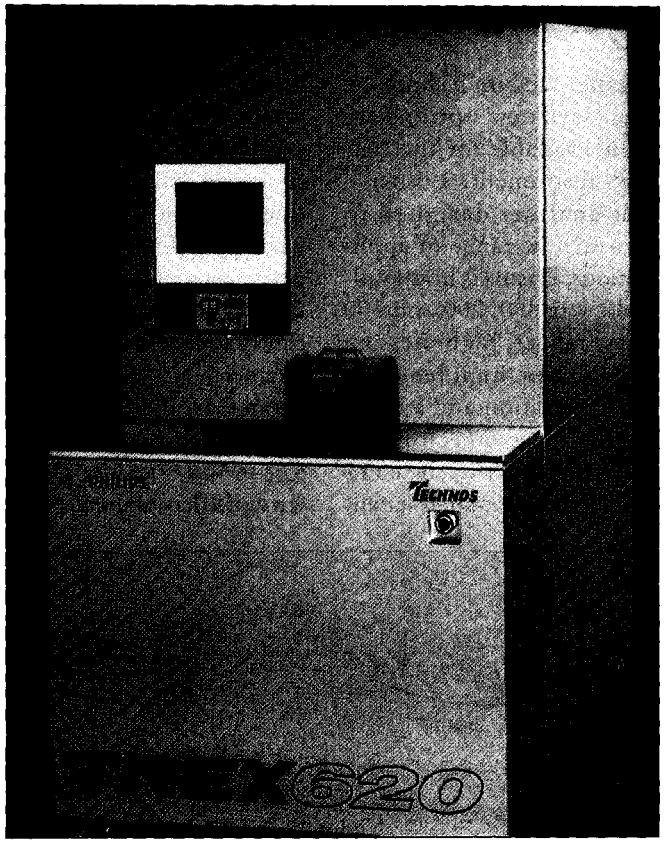
The Mini-Lab™ is an advanced and versatile quadrupole mass spectrometer in a convenient benchtop configuration, say Spectra International. The company says that a key aspect of the Mini-Lab is its ease of use, featuring automatic start up, shut down and extensive data acquisition and logging routines.



Quadrupole mass spectrometers are now widely accepted as the preferred solution to many atmospheric pressure gas analysis requirements. The Mini-Lab quadrupole analyser incorporates a gas-tight ion source and triple mass filter, and is supported by sophisticated vacuum technology and software control.

Danny Smith, Leda-Mass Ltd, tel/fax: +44 (0)1270 250150/ 251939; e-mail: spectra@supersite.net.

Philips launches new contamination control tool



A new tool for Total reflection X-Ray Fluorescence spectrometry (TXRF) is now available from Philips Analytical X-Ray. The TREX 620 monitors surface metallic contamination on wafers during manufacturing – using the TXRF technique, and features the industry's lowest detection limits, says the company.

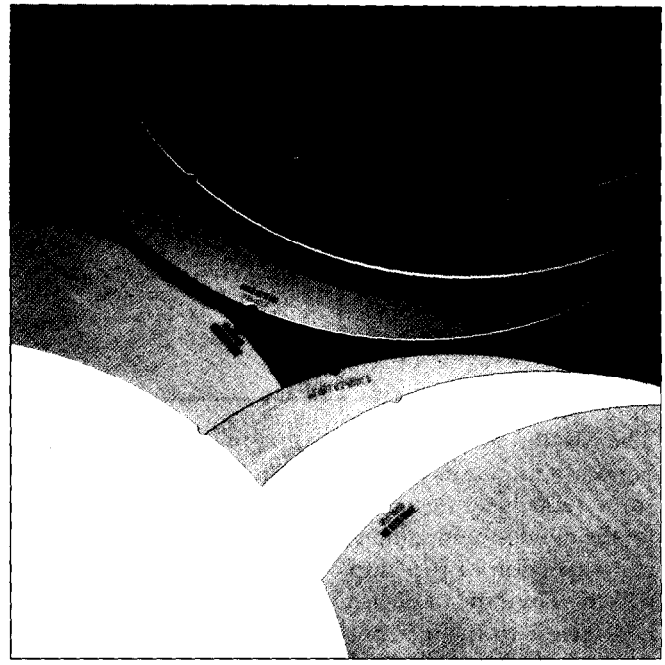
The TREX 620's new X-ray optics achieve detection limits in the low 10^9 atoms/cm^2 range. Equipped with sealed X-ray tubes, the tool requires little maintenance and should perform reliably with a mean time between service of better than 5000 hours. The uptime is typically better than 98% and mean time between failures better than 2000 hours.

The tool features a small 1.6 m^2 footprint, built-in X-ray generator and personal computer and is well suited to in-line use in semiconductor fabs. Integration within the production line is simple, thanks to the optional SECS II communication protocol. Particle contamination is kept to a minimum by vacuum robotic handling of wafers, and a re-designed stage.

The TREX 620 comes in two versions. The TREX 620T has two sealed X-ray tubes – one tungsten and one molybdenum, while the TREX 620S has a single tungsten X-ray tube. Both versions have touch-screen data entry and user-friendly Windows™ software.

Anemie van den Boom, Philips Analytical X-Ray, tel/fax: +31 546 839 430/598; URL: www.philips.com/axr

Lumonics wafer marker saves on production downtime



The WaferMark® Sigma™ DSC from Lumonics incorporates a diode-pumped laser which does not require lamp changes, simplifying installation and integration.

The WaferMark accommodates many types of wafer including silicon and III-V materials. It can handle wafer diameters from 100 to 200 mm, and marks a range of dot matrix hardmark formats including SEMI OCR, BC412 and 2D Matrix at typical speeds of between 240 and 250 wafers per hour. The WaferMark gives operators the facility to queue wafer cassettes for processing and can accommodate both flattened and notched wafers saving production downtime.

Helmut Costa, Lumonics Germany, tel/fax: +49 89 800 901-0/-50.

New miniature vacuum gauges

Granville-Phillips Co is introducing a new series of vacuum gauges that feature on-board displays in rugged, miniaturized, space-saving packages. The Mini-Convectron® gauges measure from 5 x 10^{-8} to 5x10^{-2} torr using triode or Bayard-Alpert design.

The new gauges are recommended for applications in vacuum systems where controller footprint and transducer size are critical, e.g. analytical instrumentation and OEM systems.

Granville-Phillips Company, tel/fax: +1 303-443-7660/2546.

0961-1290/97/$17.00

Detector doubles leak testing throughput

The new MS-50 Dual Port Leak Detector doubles leak testing throughput, says Veeco. It has a special dual-port design which allows a part to be tested on one port while the user is setting up another part on the second port. It has a dual-sector mass spectrometer to provide high resolution and accuracy and a built-in CRT to display everything the operator needs to know right on the screen, minimizing the need for operator training.

The firm is also launching the SEA-5000 MXRF non-contact, micro-beam metrology tool which enables measurement of deposits directly on production materials by micro X-ray fluorescence (MXRF). Applications include semiconductor wafers and advanced packages such as BGAs, MCMs and SMDs. It verifies film thickness and composition, measures microcontamination and detects poor film deposition processes. The system performs area pattern and line scans, conducts single point measurements, and tests film thickness and composition of up to five layers in a matrix of 30 elements on wafer edges, scribe lines and test pads.

Common applications include depositions such as Al-Cu, TiN, Ti-W, Au, Pt, Ag and Sn-Pb.

The SEA-5000 uses a non-destructive energy dispersion technique sensitive only to the mass per unit area of the sample. The system directs a narrow beam of X-ray energy into the film layers, which induces fluoresced X-rays that are unique to each of the elements within the layers and substrates. Opaque or translucent films from angstroms to microns thick can be analyzed for thickness or composition.

Fran Brennen, Veeco Instruments, tel: +1 (516) 349-8300.

Photoluminescence mapping delivers rapid characterisation

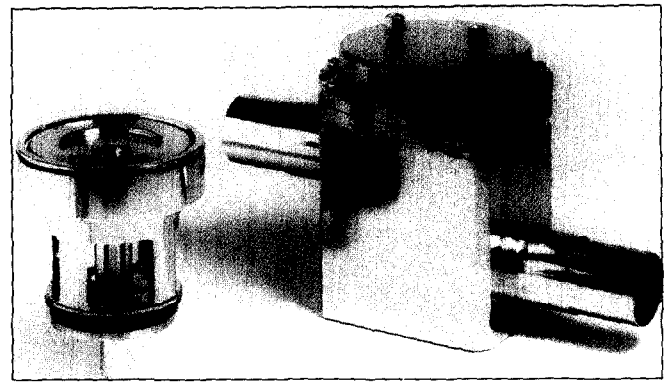
Scantek's new high performance photoluminescence (PL) mapping system, the SC 500, is dedicated to rapid characterisation of compound semiconductor epitaxial layers. The instrument reveals lateral inhomogeneity of the room temperature PL emission down to 0.1 nm, says the company. Measurement times for full spectral characterisation in production are less than 15 minutes for a 2-in wafer. The SC 500 offers a mapping resolution of 1μm. In standard configuration the maximum wafer size is 6-in and the spectral range is 350 nm to 2.5 μm.

Five lasers, a white light source for spectral reflectance mapping, and four photodetectors can be installed to cover multiple applications.

All instrument functions are automated and controlled by intuitive software which also provides powerful routines for analysis of the measurement results.

Klaus Schohe, Scantek, tel/fax: +33 (0)47833-5200/-4192.

Fluid Control offers improved regulation for bulk gas applications



Two new products from Fluid Controls Ltd (FCL), Aldermaston, UK will be launched at the Vacuum and Semiconductor Show in Edinburgh. They are a piston-operated high flow, high purity pressure regulator (from Kaye and MacDonald Inc), and POU Mott Penta Filters.

The new regulator (see photo) provides up to four times as much capacity per valve size than previous metal diaphragm designs, says FCL. With sizes ranging from half-inch (with a CV of 3.5) up to a four-inch (with CV of 120),the company claims this is the next generation of regulators for atmospheric or specialty bulk gas applications or POU with a CV requirement of 1.8 or more.

The Mott Penta filters are available in a wide choice of designs: the all-metal Penta filterscan now offers the same high flows and low △P associated with Teflon filters, but with a 100% nickel filter element.The unique design features a reduced filter element surface area which minimises levels of moisture and hydrocarbons while maximising flows.

FCL says that the new filters offer △P as low as 2 psid at 90 psig inlet, 80 SLPM, without having problems with media migrations or annual change-outs, as are usually the case with Teflon filters.

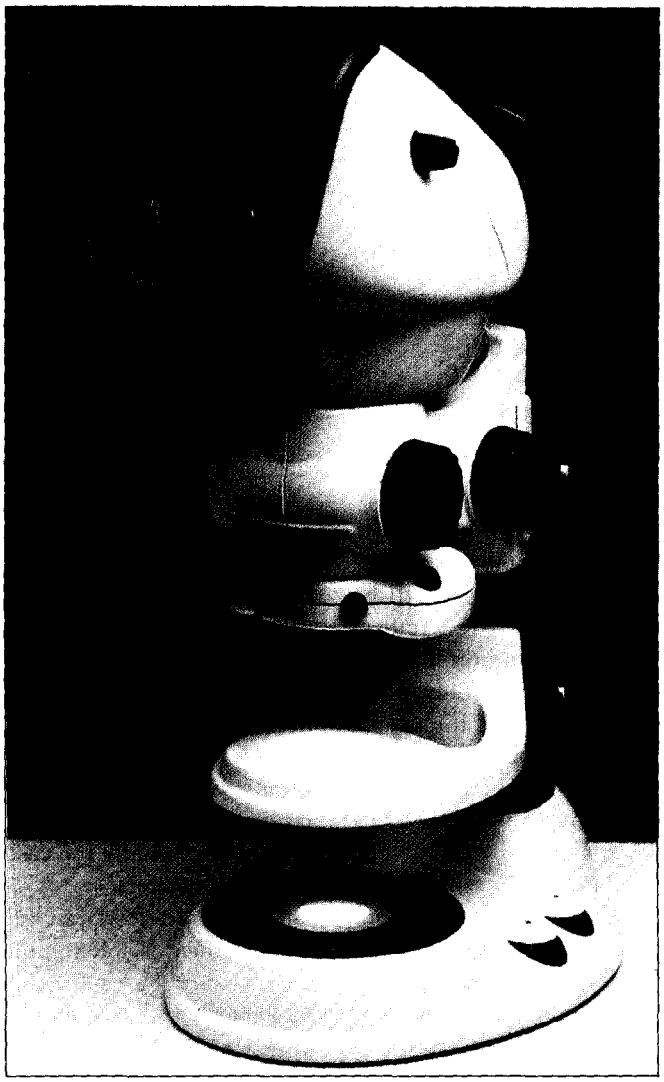
The high-flow nickel filter element is able to prevent no less than 99.9999999% of particles as small as 0.003 μm form reaching downstream process tooling, furthermore they have a maximum rated flow of 300 SLPM coupled with the strength to withstand media temperatures of 450C and inlet pressures as high as 3750 psig.

FCL has made the filters available in industry-standard sizes as small as 3.31-in long and constructed from 316L stainless steel or Hastelloy C-22 for highly corrosive applications.

James Doyle, Fluid Controls Ltd, tel/fax: +44 (0)118 981-1004/-0775.

0961-1290/97/$17.00

COBRA wafer inspector reduces operator strain



The View Vision COBRA optical inspection system features new Expanded Pupil® high resolution stereo optical technology.

Advantages of the instrument include high magnifications (×6 to ×40), generous working distance (up to 312 mm) and for the operator lower eyestrain and easing of posture problems.

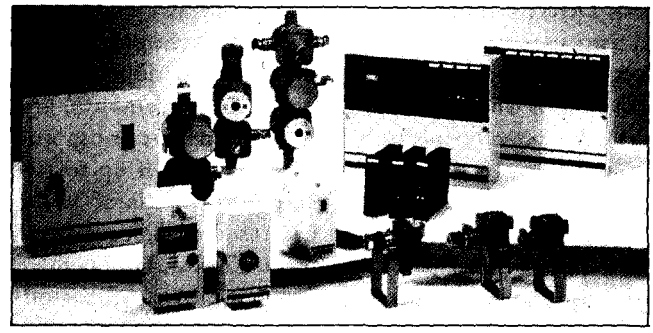
The EP eyepieces allow freer head movement both laterally and in terms of distance from the eyepieces without impairing the full-field high resolution stereo image.

They also eliminate the need for rubber eyepiece cups which are known to transmit medical infections. Moreover, they permit the operator to retain spectacles or safety goggles.

In addition, the Dynascope is available combined with WED's Microloader® wafer transfer system or Ultrastation 3C from Irvine Optical Corp.

Mark Curtis, tel/fax: +44 (0)1483 223417/248317.

Keithley enters gas detection sector



Keithley Instruments, well known for its range of electrical characterisation instrumentation, is introducing its debut products for the gas detection and monitoring business sector. Offering real-time diagnostics and fully-integrated alarm and control capabilities, the systems detect combustible and toxic gases at 10 ppb levels.

Keithley is aiming the products not just at the semiconductor industry but also the petrochemical, construction and food, etc. industry sectors. They are available as fixed (GM-V) or portable (GM-PL) units networked in the former case via a distributed architecture for flexible and scaleable measurement. They can be made more sensitive to specific chemicals using unique chemical filters. The sensors are stable with low susceptibility to false alarms, and have a high threshold to poisoning. Nine different sensing technologies are integrated into the system to provide chemical monitoring at various concentrations depending on the application.

The portable sensors are rugged and hand-held — well suited for safety or compliance measurement and atmospheric testing for toxic gases or hazardous levels, e.g. for very small leaks in either open or confined areas.

Tel/fax: +44 (0)118 957 5666/ 959 6469.

EDAX Eagle Probe provides fast analysis

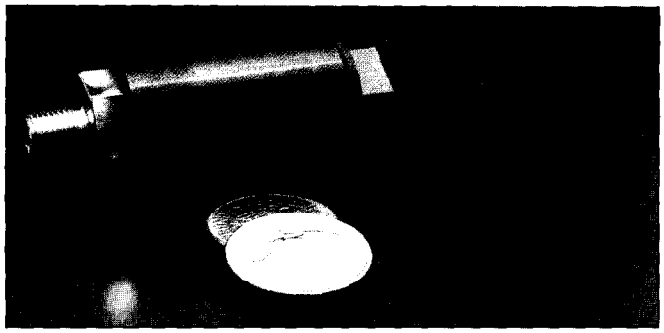
EDAX, Mahwah, NJ, USA, says its Eagle μ-Probe™, a compact, table top analyzer using the latest in x-ray microbeam technology, provides fast and accurate elemental microanalysis.

The Eagle μ-Probe™ uses sophsiticated x-ray capillary optics which allow the x-ray spot size to be concentrated to 100 μm or less. The high intensities obtained with the optimized optics provide nondestructive, simultaneous multielement analysis of the widest variety of samplke types: solids, liquids and powders.

Jim Nowak, Tel/fax: +1 201 529 4880/3156.

0961-1290/97/$17.00

Robust pressure sensors give stable output



Sensortechnic claims its PS19000 Series of pressure sensors are robust and competitively priced. Available in seven ranges from 1 to 33 bar absolute or gauge, they give a stable output signal of 0-50 mV at 5 V. All media wetted areas are constructed using all-welded (no o-rings) 1.4401 stainless steel coupled to a rugged anodised aluminium IP65 housing.

Sensortechnic's sensors are based on PZ silicon giving good long term stability (typically 0.1% FS/yr) and temperature errors over 0-70°C are better than 1%.

Tel/fax: +49 (0)89 800-830/-8333.

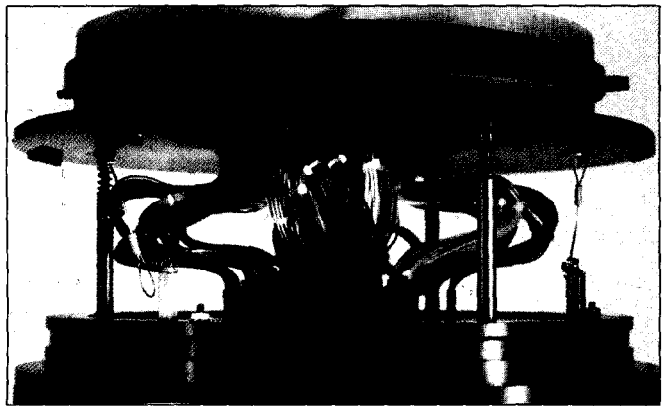
SDI tool pinpoints defects

The precise locations of functional defects in devices can readily be pinpointed with the Soft Docking Interface (SDI) says makers Hypervision. The tool extends the full-speed functionality of the ATE text head directly into the enclosure of the emission microscope.

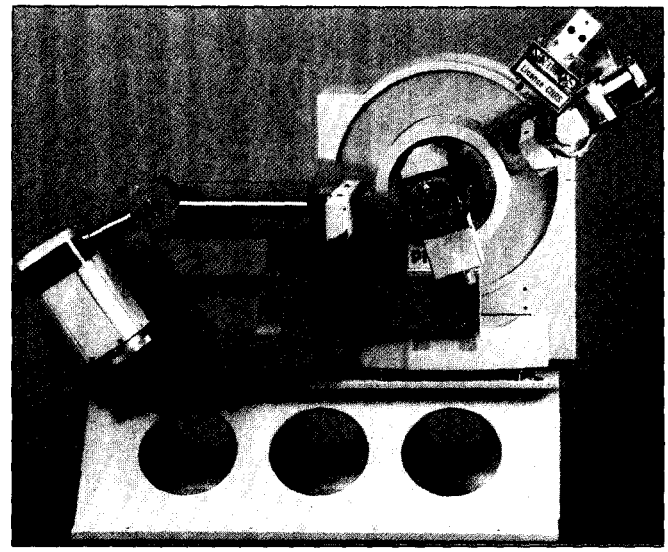
The SDI mounts directly onto the ATE test head because no cable set up is required. The device under test is then socketed at the top of the SDI which creates a vibration-free platform for imaging in the light-tight enclosure of the microscope.

ATE test vectors can be run at full speed (150 MHz) these features permit failure analysts to image and locate functional failures while using the same test vectors which initially defined the failure and at the same speed.

Daniel T. Hurley, tel/fax: +1 (510) 651-7768/1415. E-mail: 73141.3634@compuserve.-com



XRD beam monochromator improves resolution



Resolution of the Philips Analytical X-Ray X'Pert XRD systems is improved further with the Alpha-1primary beam monochromator — it gives better accuracy with advanced analyses such as line profile and Rietverl analyses.

Philips has removed the Kalpha2 component of the Kalpha radiation from copper X-ray tubes and improved axial divergence of the beams. This results in improved definition of peak profiles, better peak/background ratio and a well-defined background.

Measurements carried out on a NIST SRM 1976 standard, an alumina plate, show a minimum peak width (FWHM) as small as 0.04°2θ.

The factory-aligned monochromator is equipped with a symmetrically cut Johanssen-type Ge (111) crystal. The construction and materials used ensure easy and correct alignment, independent of fluctuations in temperature or time says Philips.

The user can adjust the omega rotation of the monochromator crystal for optimization, for example after exchanging X-ray tubes.

Tel/fax: +31 546 839 430/598. URL: www.philips.com/axr

To ensure that your new product announcement can be considered for inclusion in the next issue please mail your copy and mono/colour photo to David Finch, Editor *III-Vs Review*, Elsevier Advanced Technology, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1AS UK. Or email your copy to d.finch@elsevier.co.uk.

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